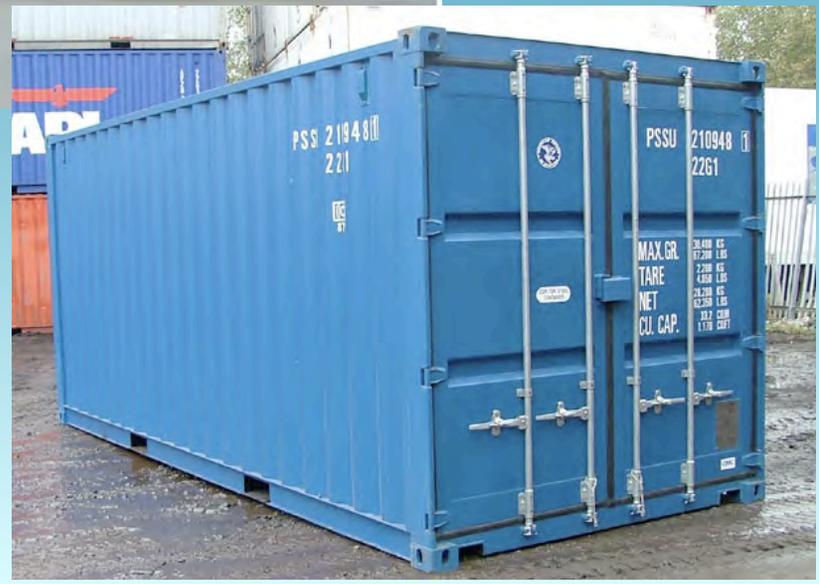




Containers in the Ocean: What's the Impact?

Andrew DeVogelaere
SAC April 21, 2011









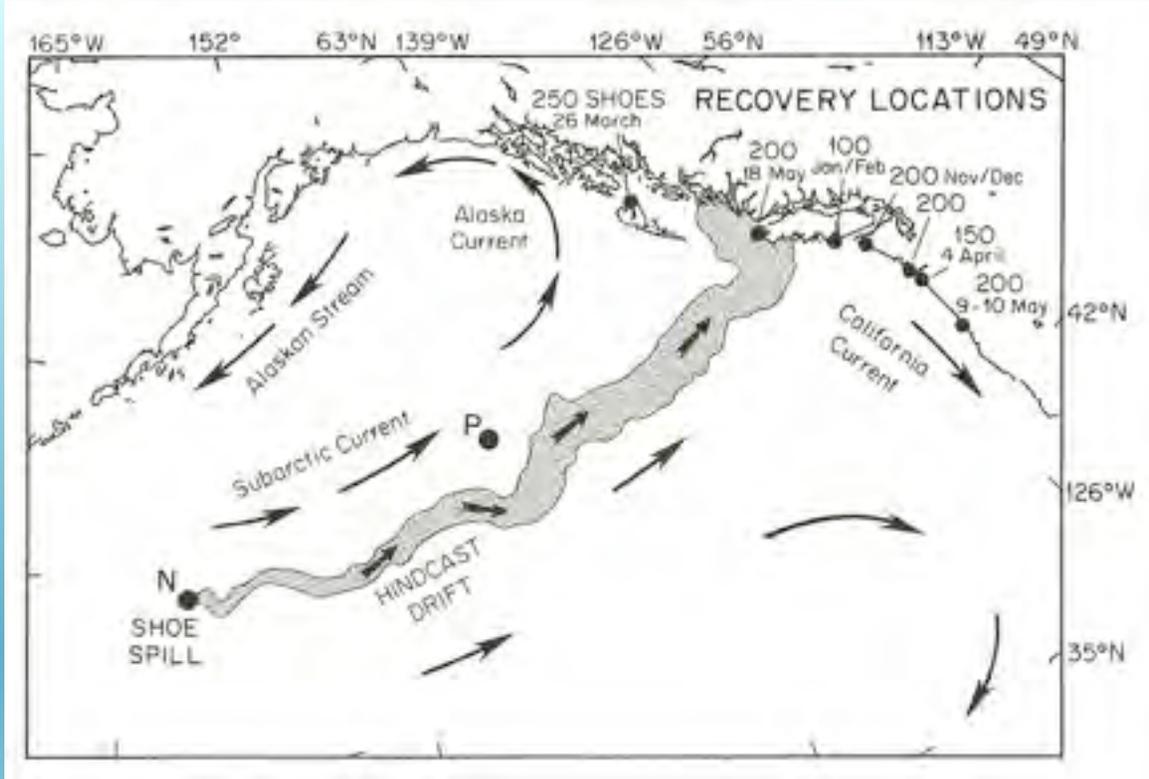
Lost Shipping Containers: stepping stones for invasive species, changes to the deep sea ecosystem?







Figure 7: APL China clean up effort after loss or damage of about 800 containers in 1998. Source: http://www.itk.ntnu.no/ansatte/Holden_Christian/prof/research.php



Port of Los Angeles Container Traffic (TEU)

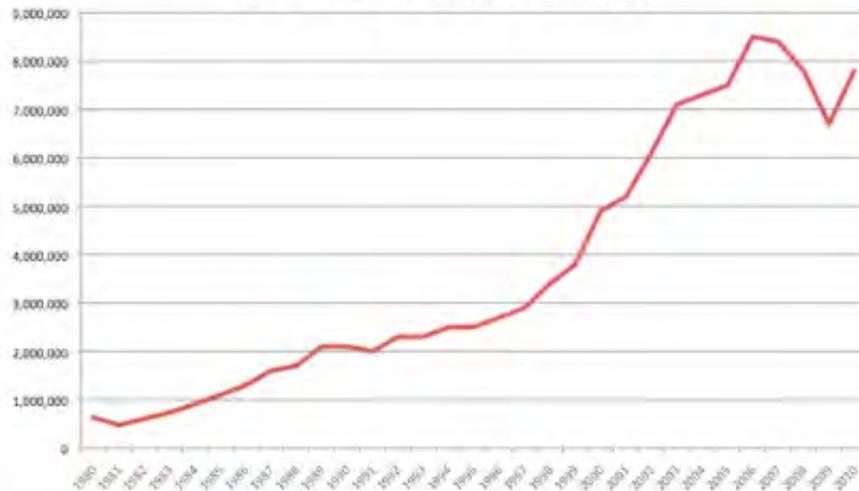
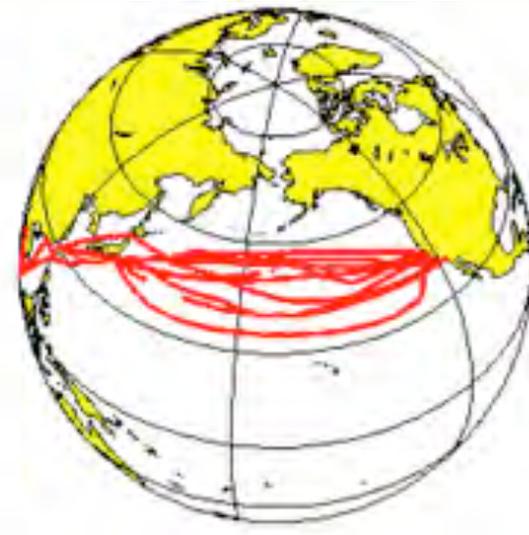
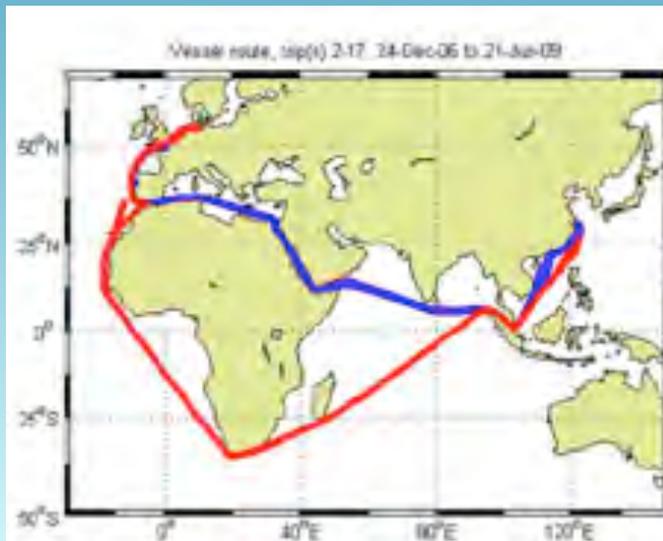


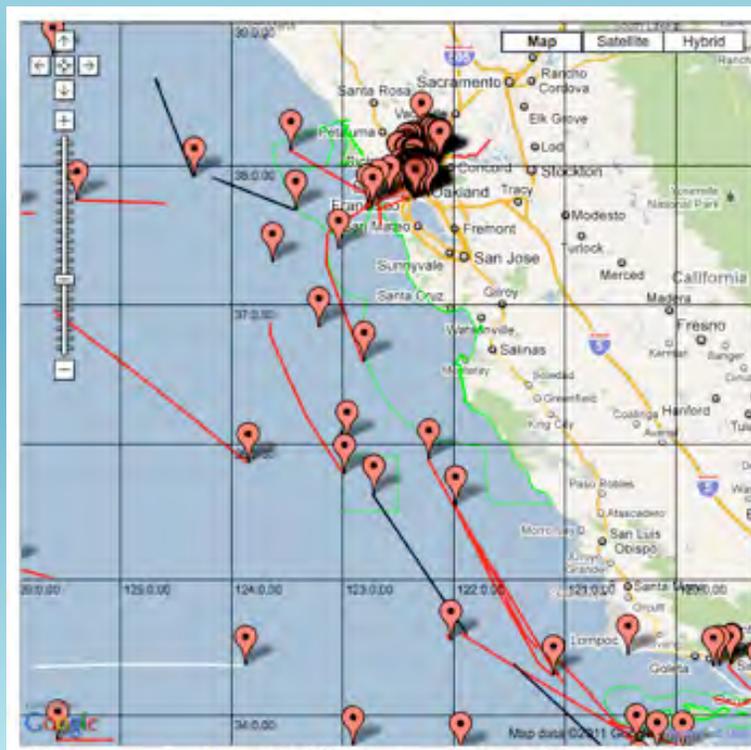
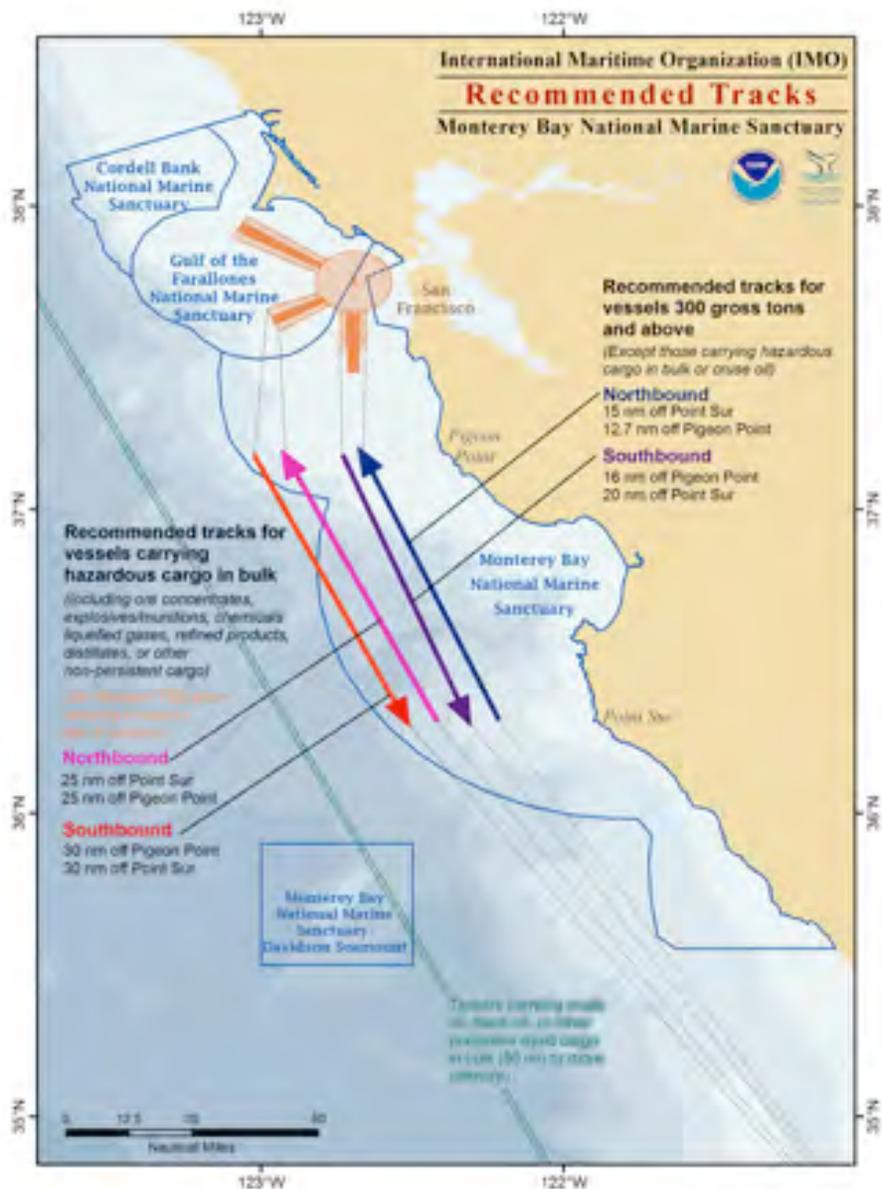
Figure 2: Port of Los Angeles container traffic, 1980-2010. Container shipping trends correlate with economic activity and the scale of international trade relations. Data from *The Port of Los Angeles*, <http://www.portoflosangeles.org/maritime/stats.asp>.

Table 4: World's 20 busiest container ports by TEU in 2010. Pacific Rim ports highlighted in yellow; U.S. ports are in bold font. Data from *Containerisation International*, <http://www.ci-online.co.uk/>

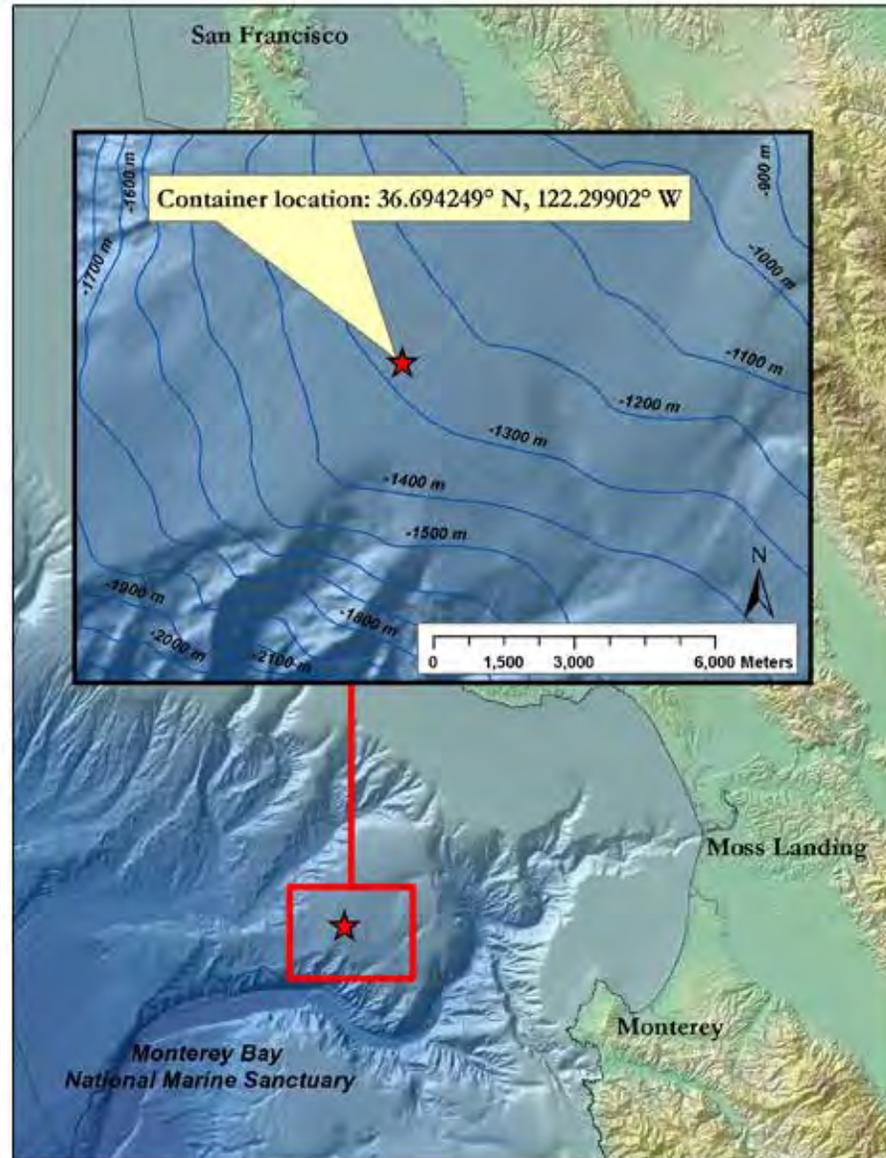
Ranking	Port Name	Trade Region	Total 2010 TEU
1	Shanghai	East Asia	29,069,000
2	Singapore	South East Asia	28,430,800
3	Hong Kong	East Asia	23,532,000
4	Shenzhen	East Asia	22,509,700
5	Busan	North East Asia	14,157,291
6	Ningbo	East Asia	13,144,000
7	Guangzhou	East Asia	12,550,000
8	Qingdao	East Asia	12,012,000
9	Dubai	Mid-East	11,600,000
10	Rotterdam	Northern Europe	11,145,804
11	Tianjin	East Asia	10,080,000
12	Kaohsiung	East Asia	9,181,211
13	Port Klang	South East Asia	8,900,000
14	Antwerp	Northern Europe	8,468,475
15	Hamburg	Northern Europe	7,900,000
16	Los Angeles	North America West Coast	7,831,902
17	Tanjung Pelepas	South East Asia	6,530,000
18	Long Beach	North America West Coast	6,263,399
19	Xiamen	East Asia	5,820,000
20	Dalian	East Asia	5,242,000



Ship traffic in the Monterey Bay Sanctuary







Losses from the *Med Taipei*: cyclone fencing and poles;
radial tires; hospital beds; mattress pads; hair ribbons;
hair turbans; cosmetic bags; leather furniture; waste cardboard



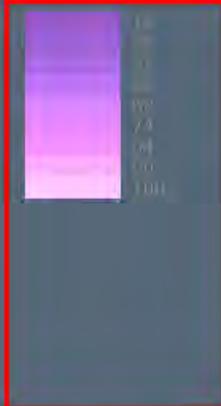
Figure 21: Container TGHU7712262, discovered by MBARI researchers on June 9, 2004 at a depth of 1281 meters on Smooth Ridge 17.5 nm NW off Point Pinos. Photo credit MBARI.

Light Containers

2 to 8 tons

Legends

PROB OF TARGET BEING IN THIS COORD. CAPTURED



PROB OF TARGET BEING IN THIS COORD. CAPTURED

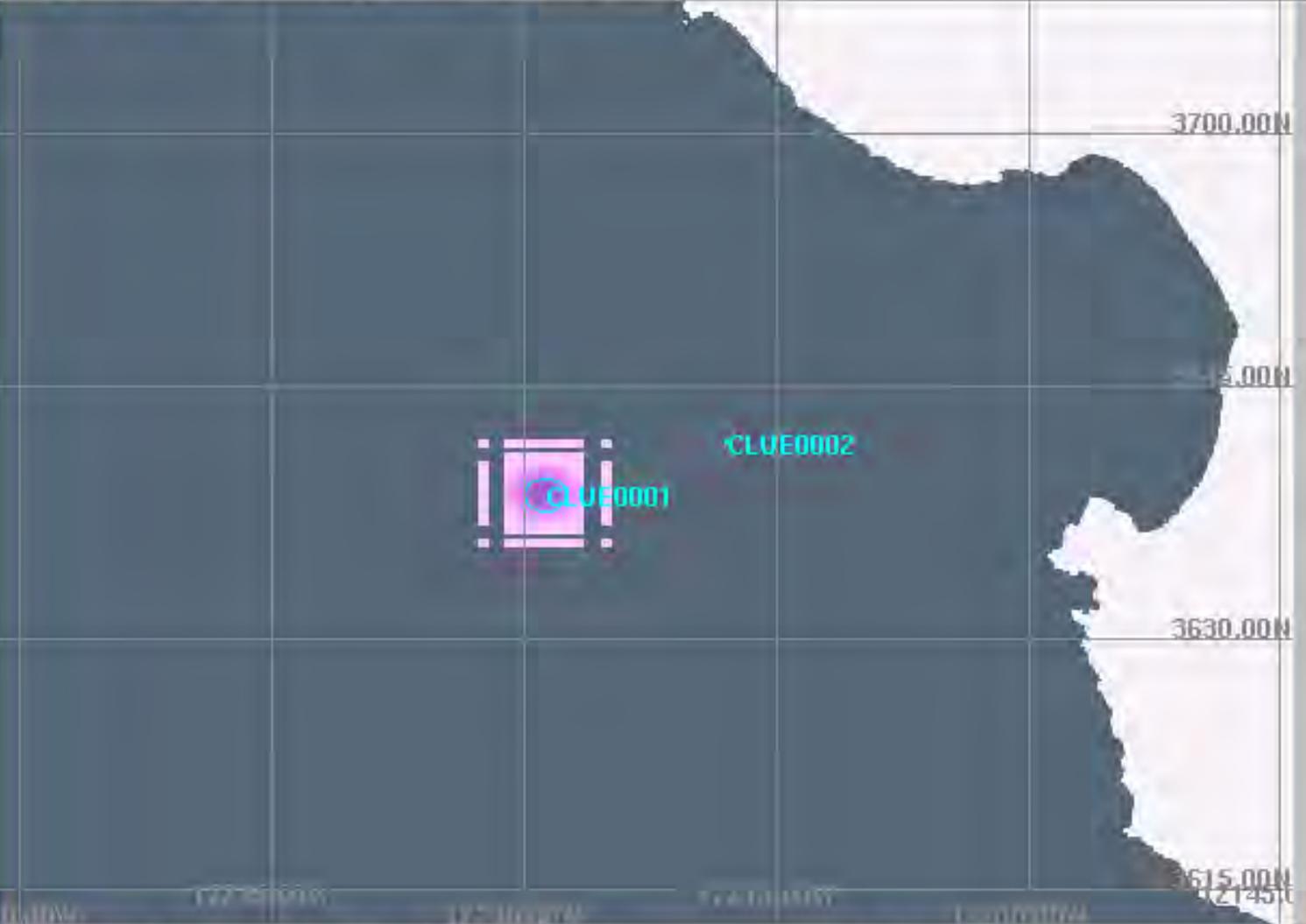
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Map Environment Utilities Help

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3700.00N

3650.00N

3630.00N

3615.00N

172.0000W 174.0000W 176.0000W 178.0000W

3707.46N/12240.93W 62.56 NM

Zoom In Out Center

Legends

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PROB OF TARGET BEHIND THE COBOP OF CARRIER

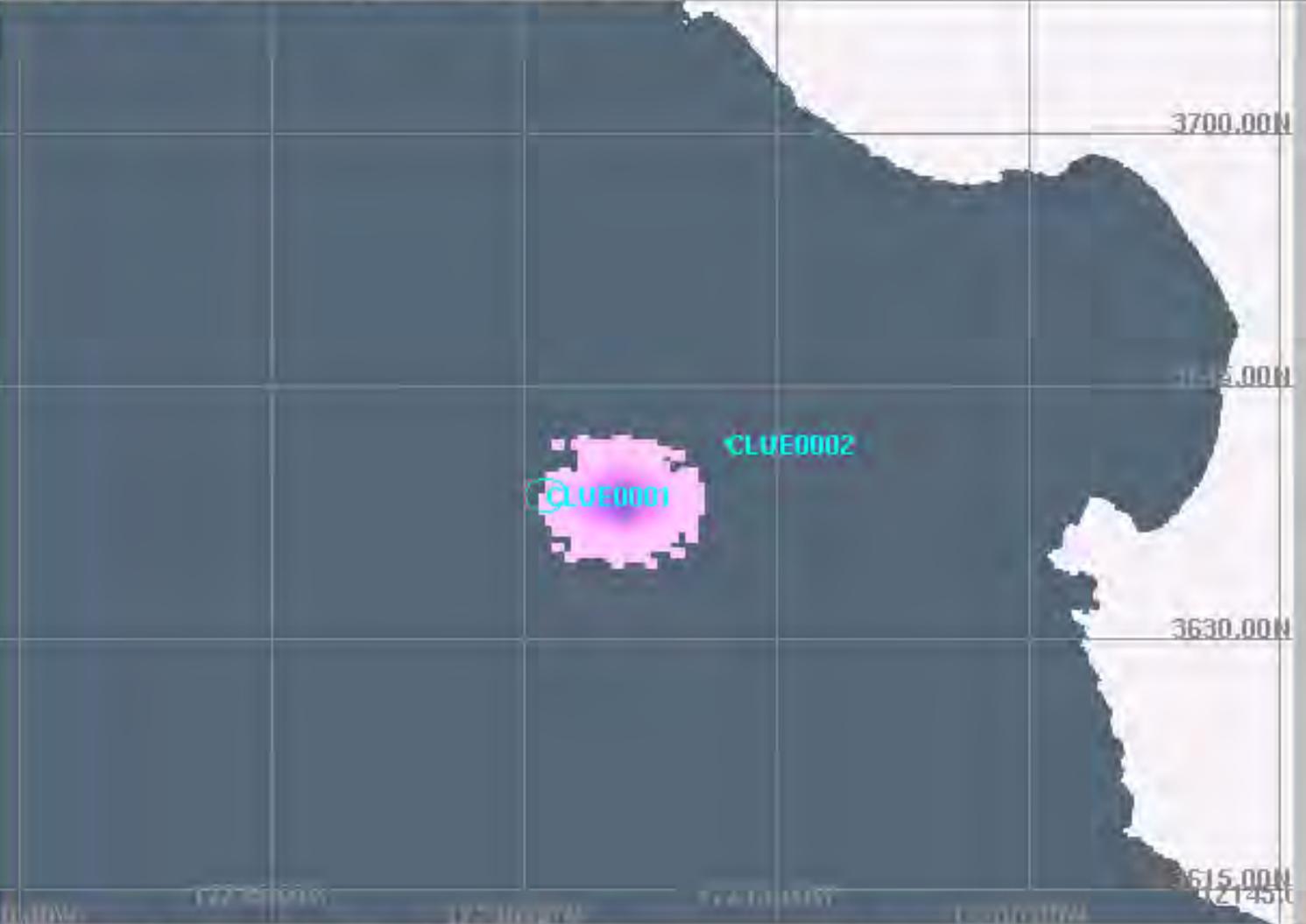
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3645.00N
3630.00N
3615.00N

72.0000W 74.0000W 76.0000W 78.0000W

Zoom In Out Center

3707.46N/12239.00W 62.56 NM

04:00

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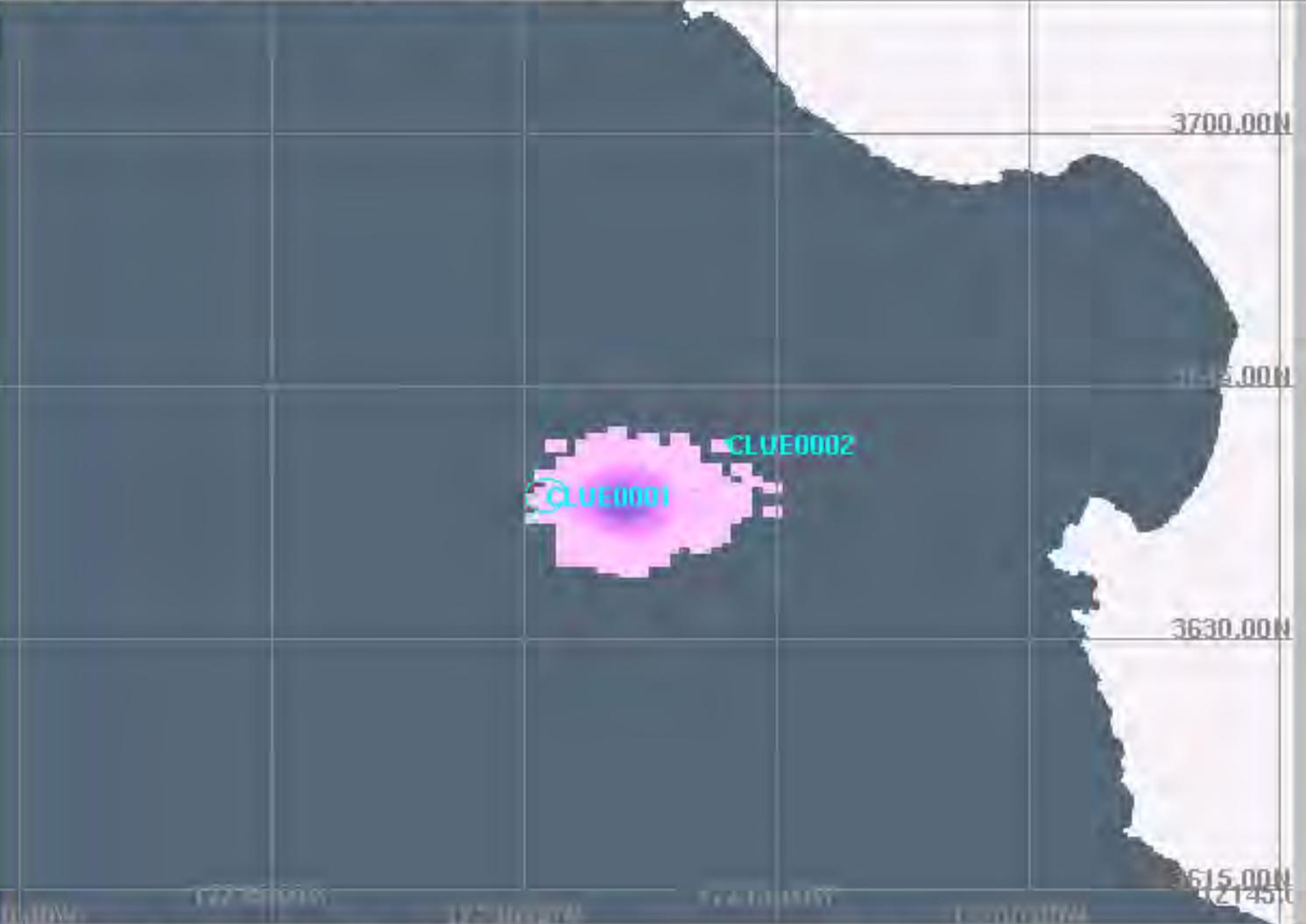
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3645.00N

3630.00N

3615.00N

3707.72N/12235.02W 62.56 NM

Zoom In Out Center

Legends

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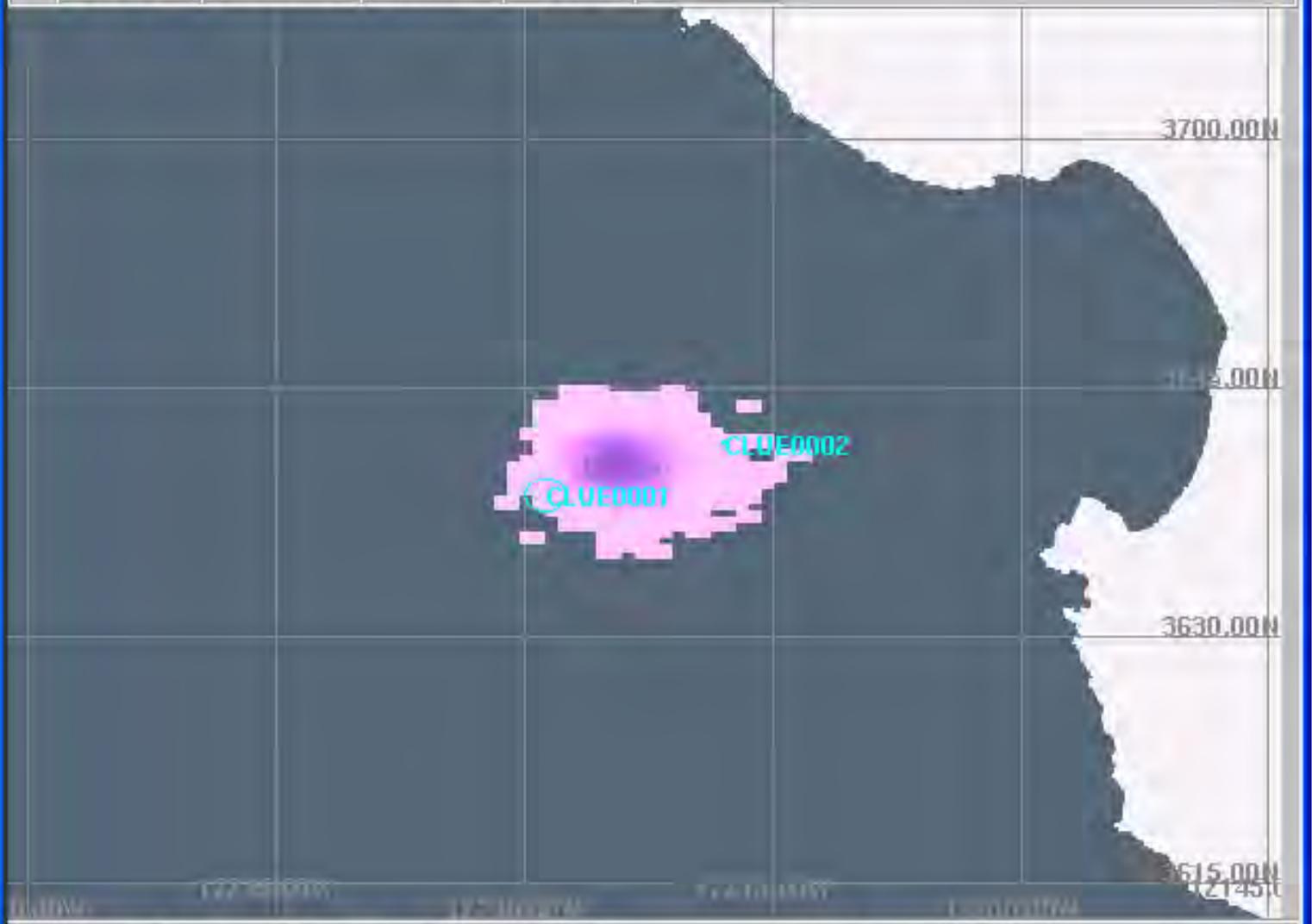
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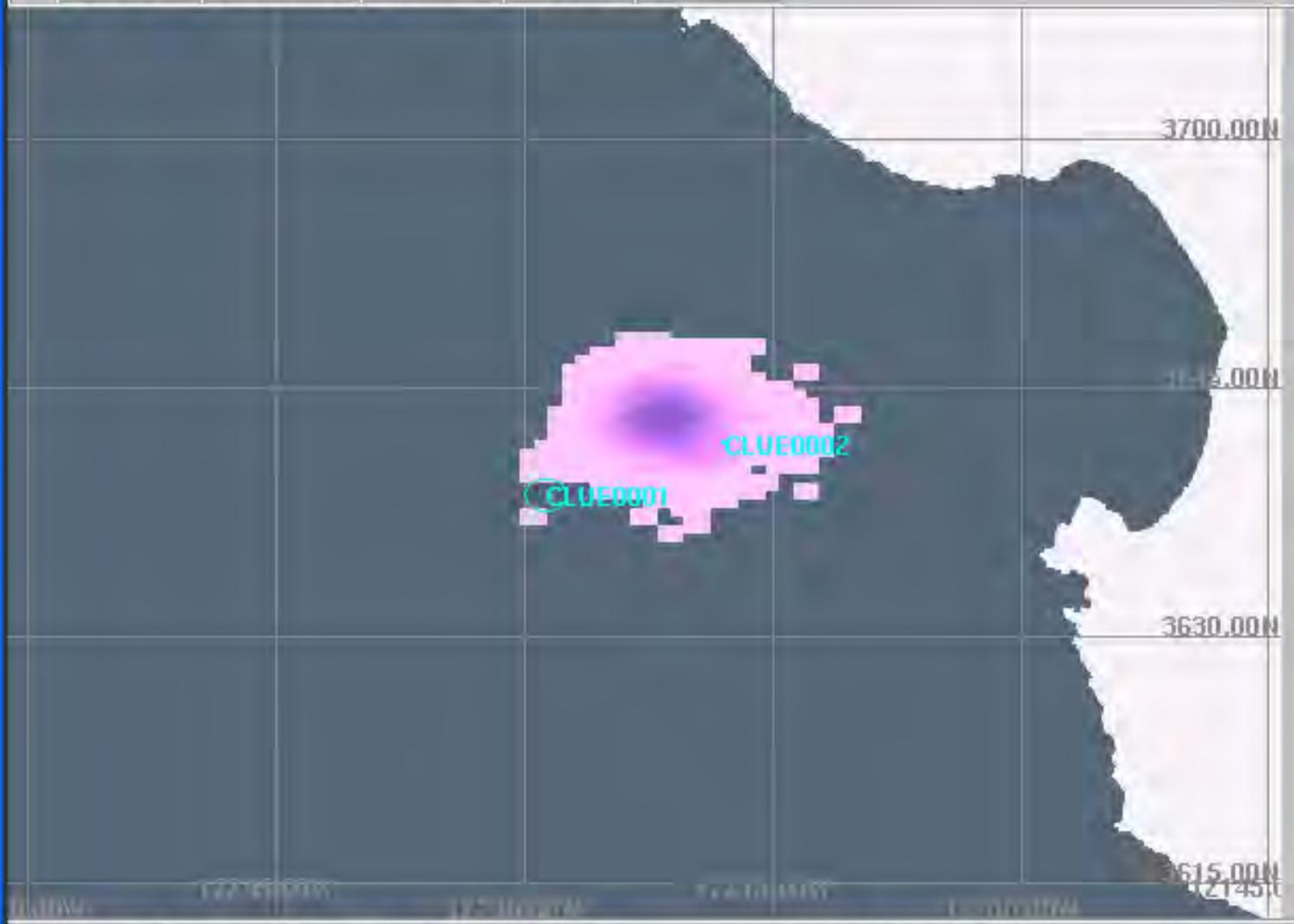
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Previous Next
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16:00



Legends

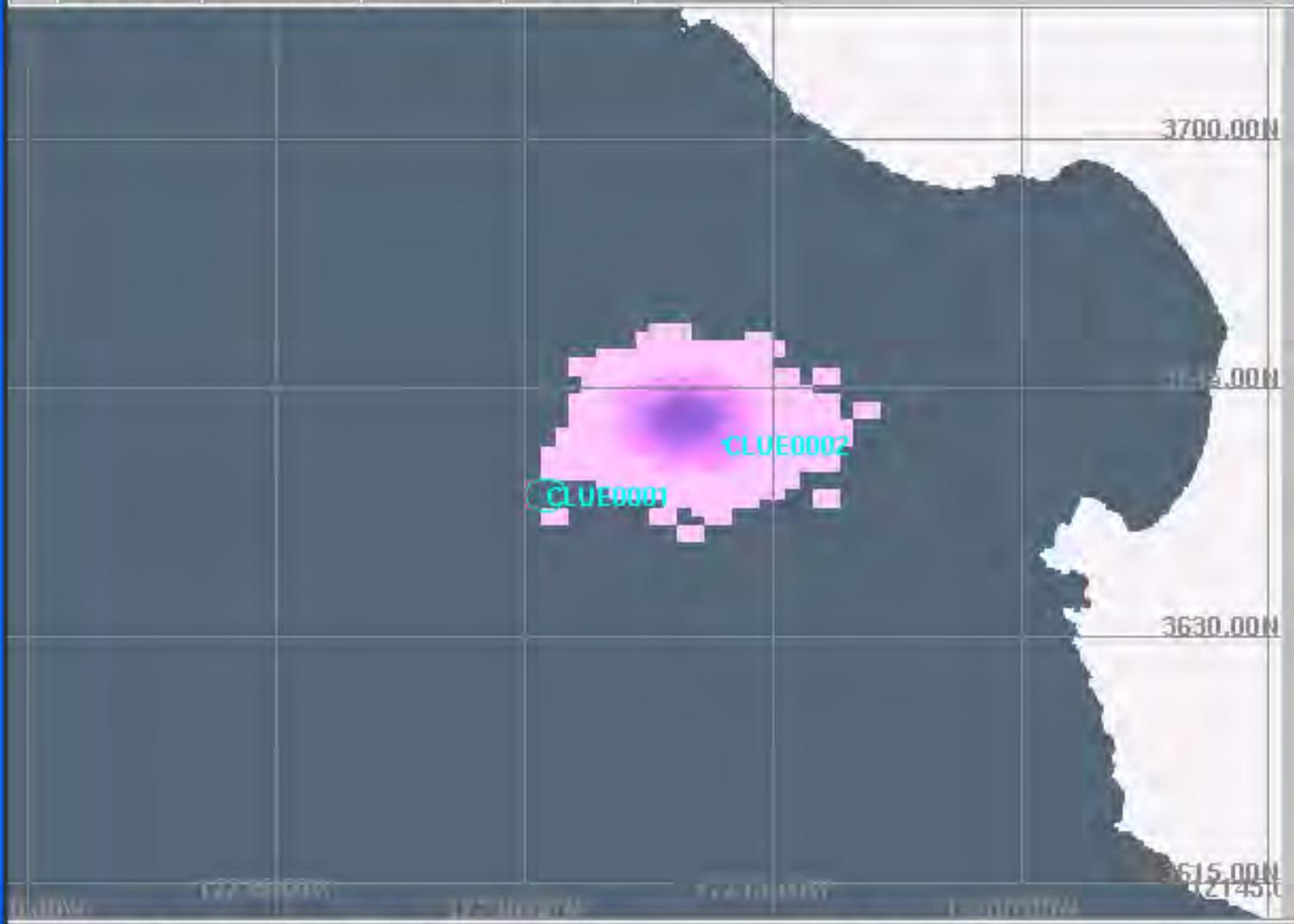


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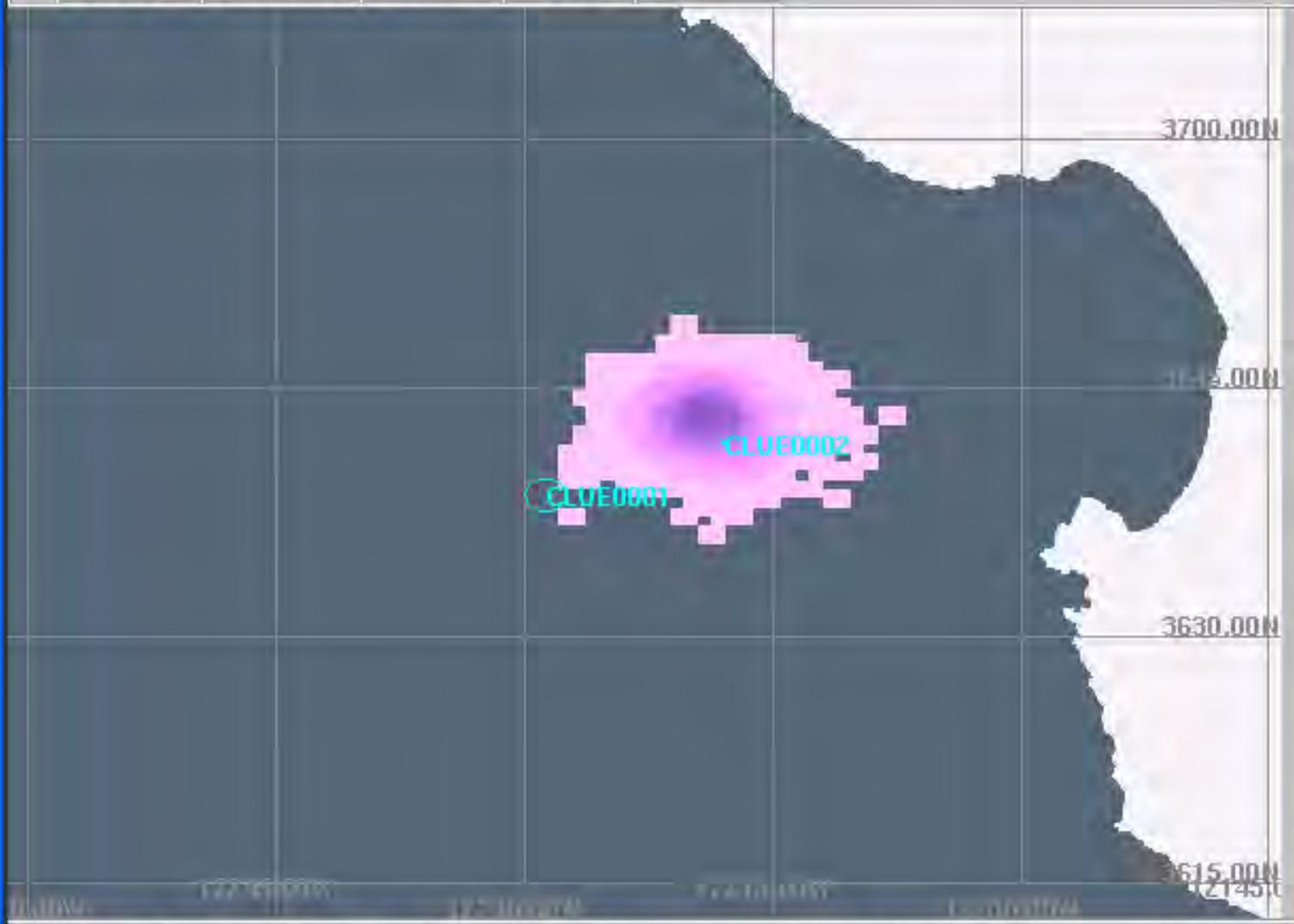
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PROB OF TARGET BEHIND THE COASTLINE CARRIED

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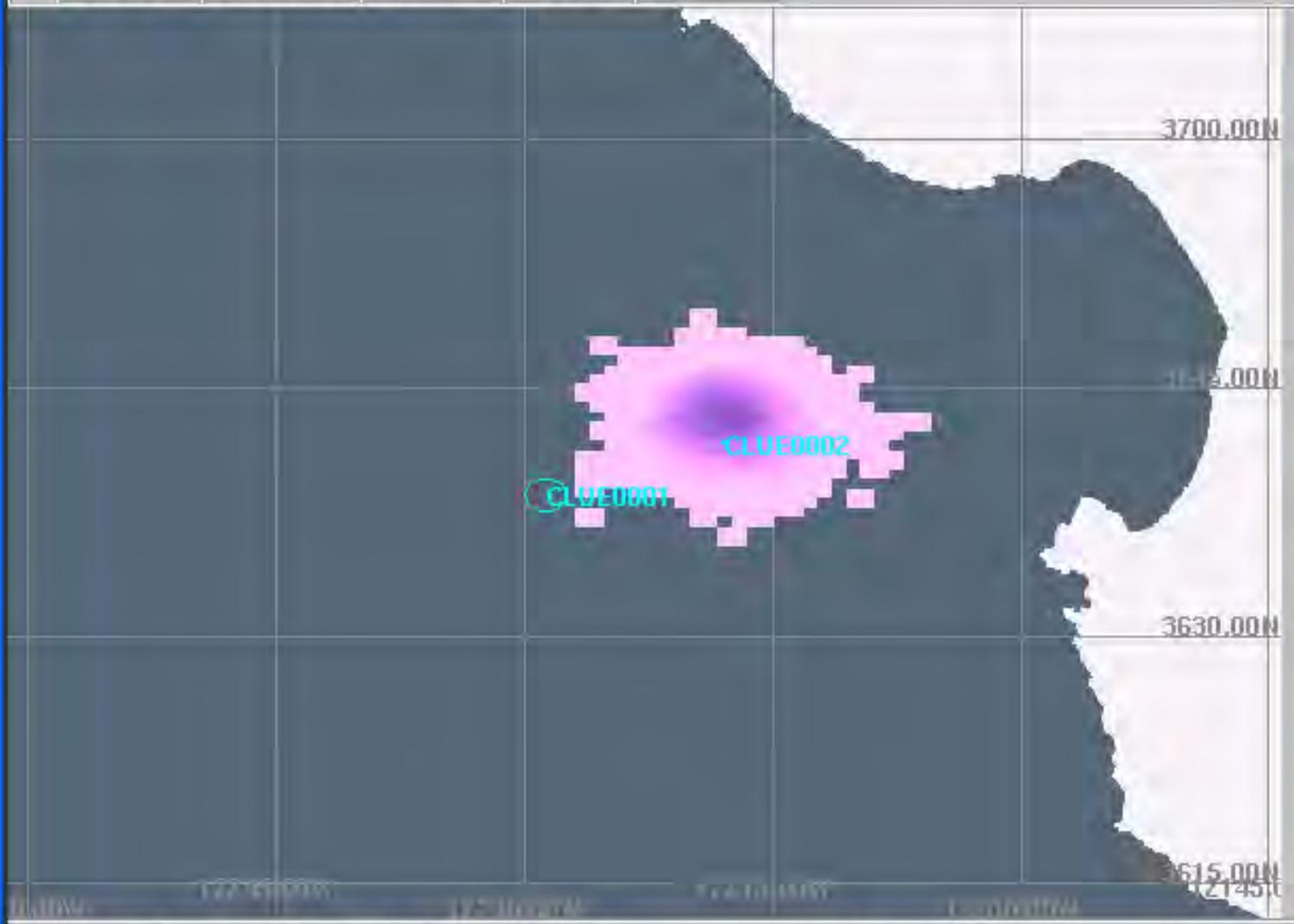


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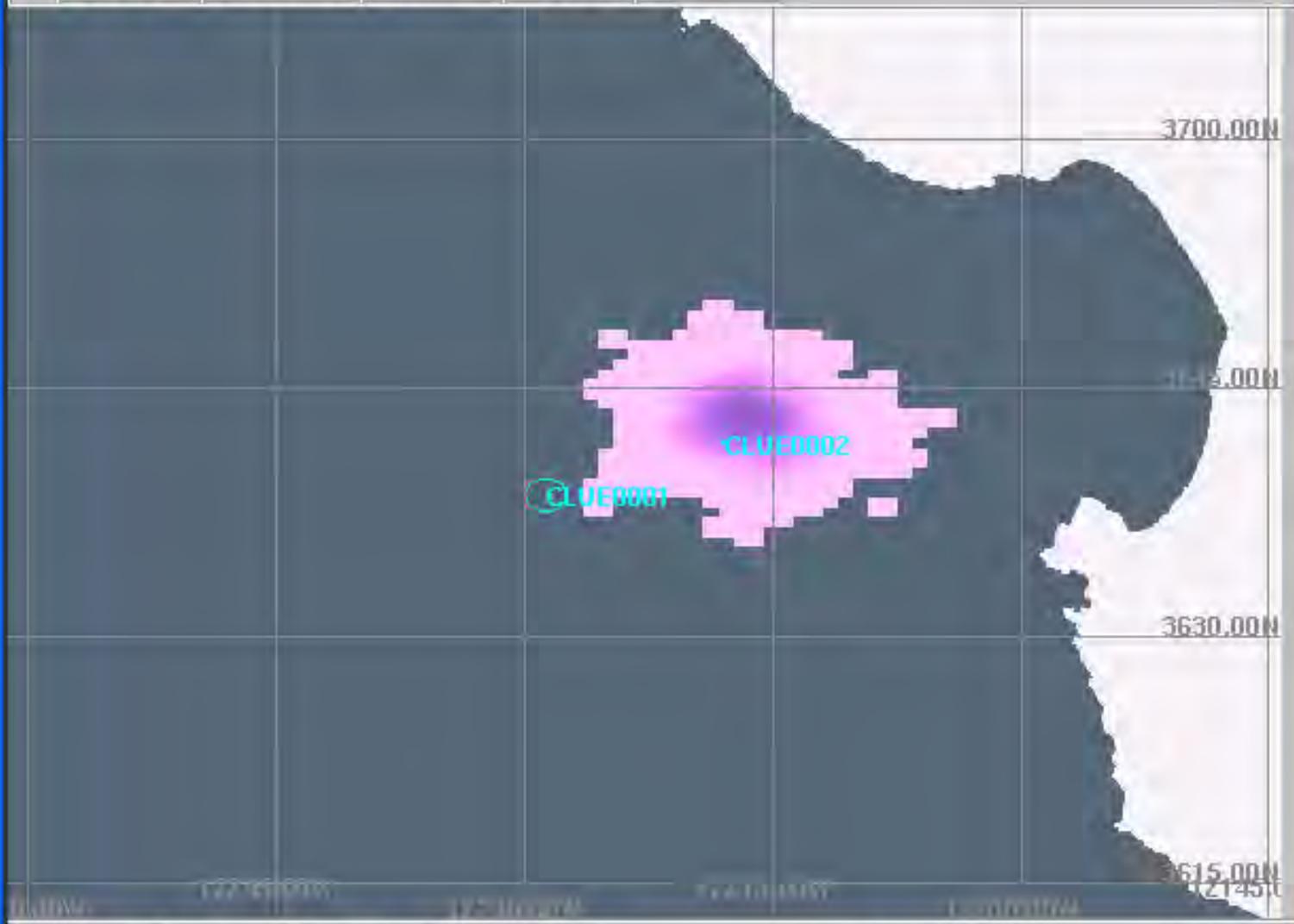




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OF THE COOP
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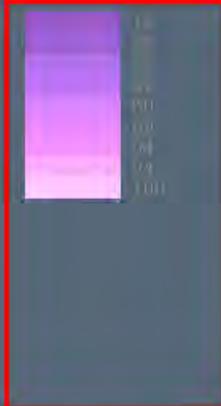
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Legends

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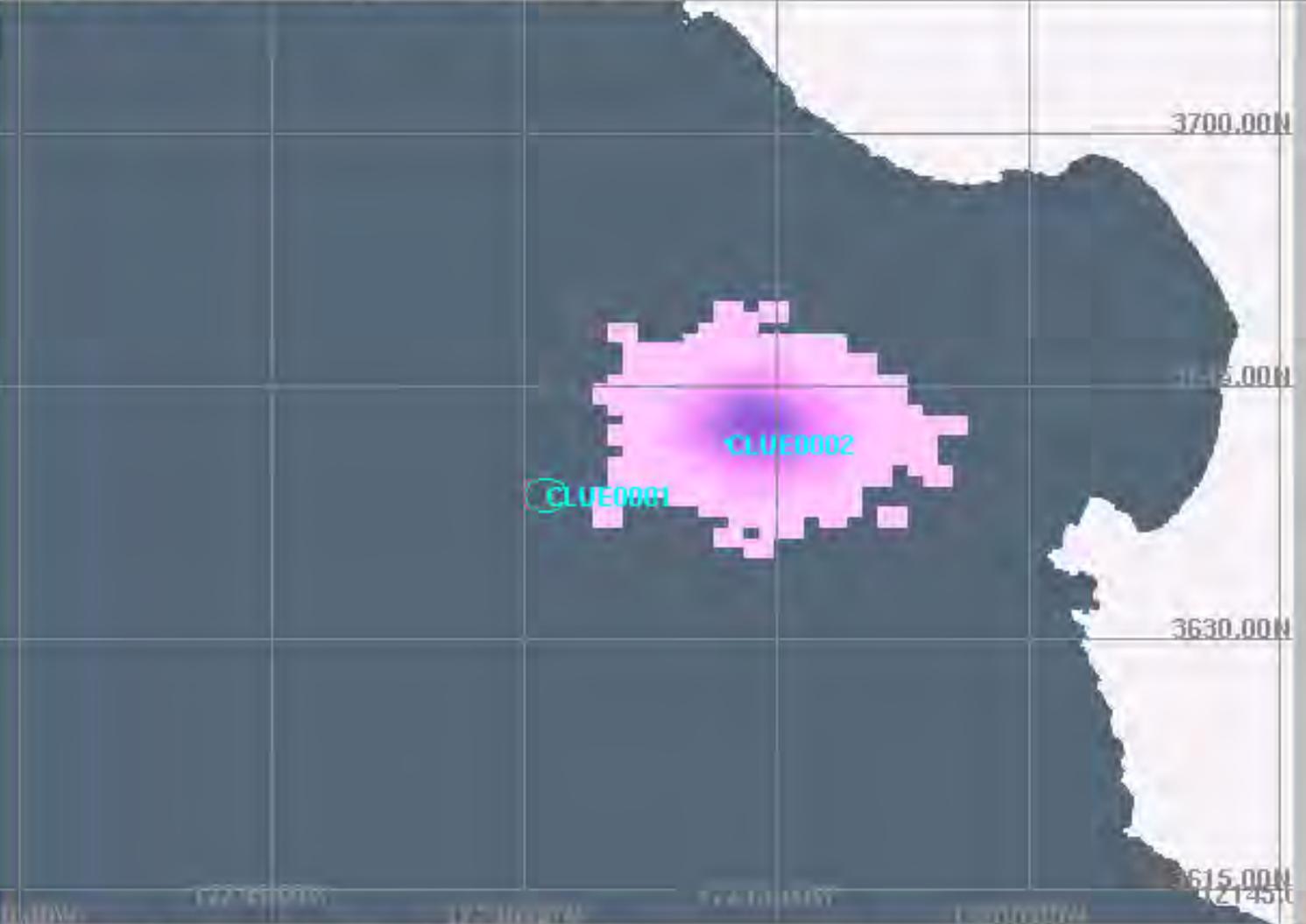
PROB OF TARGET BEHIND THE COBOP OF CARRIER

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Map Environment Utilities Help

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3700.00N

3645.00N

3630.00N

3615.00N

122.4500W 123.0000W 123.5500W 124.1000W

CLUE001 CLUE002

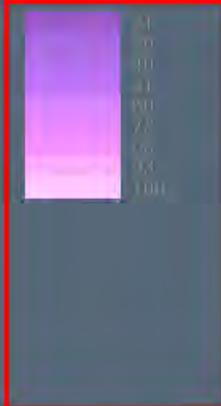
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3707.59N/12229.76W 62.56 NM

21:00

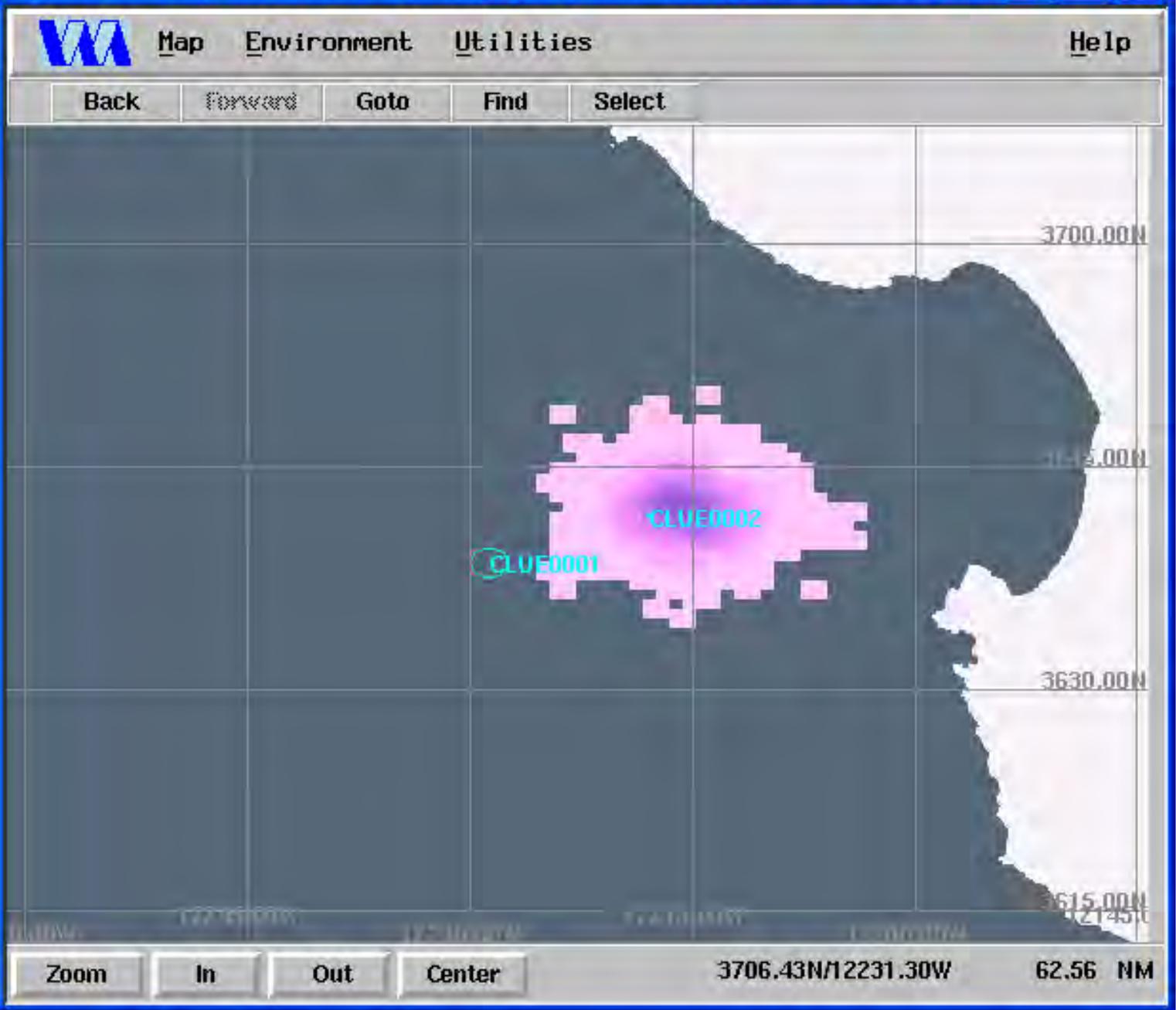
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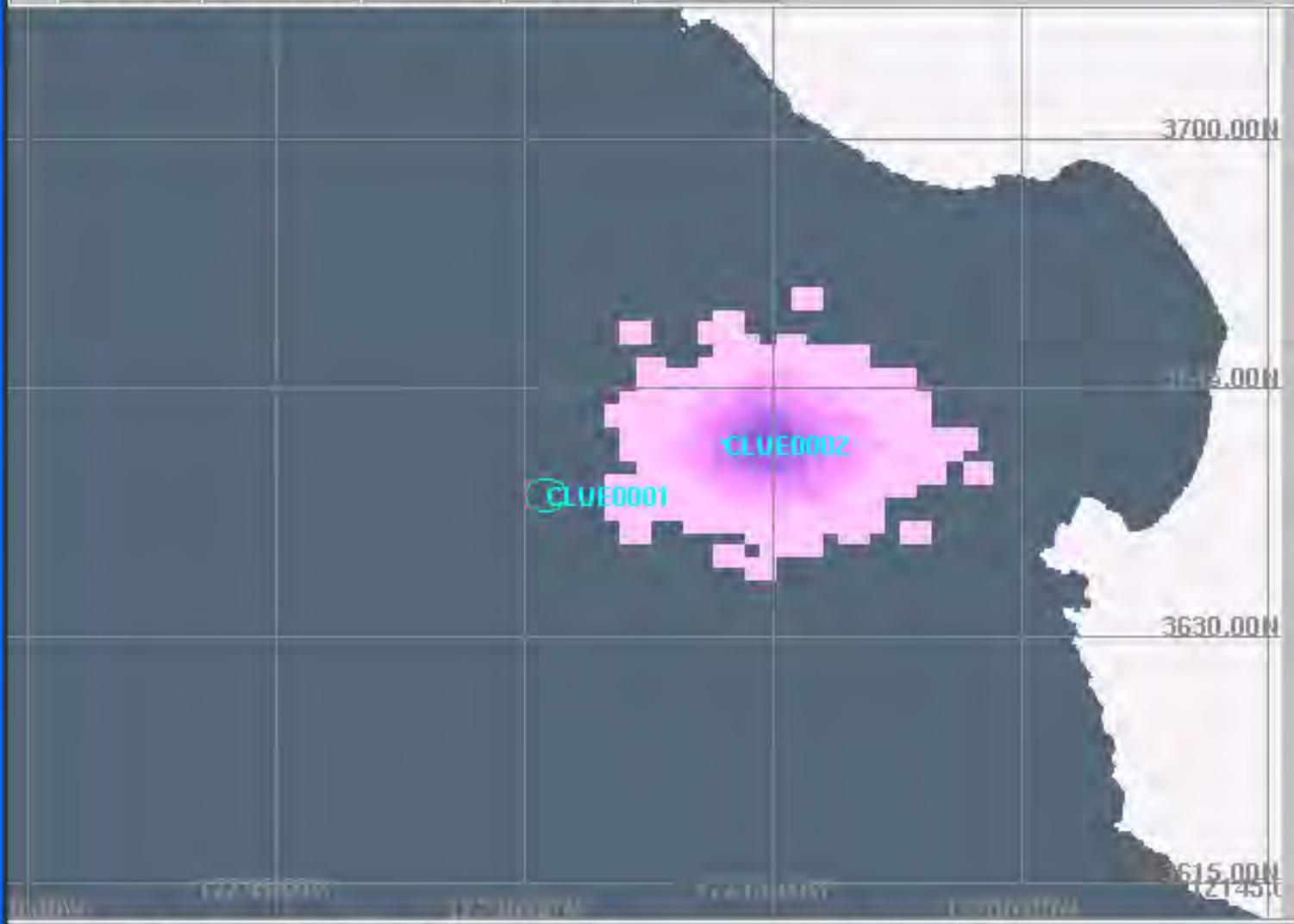
22:00



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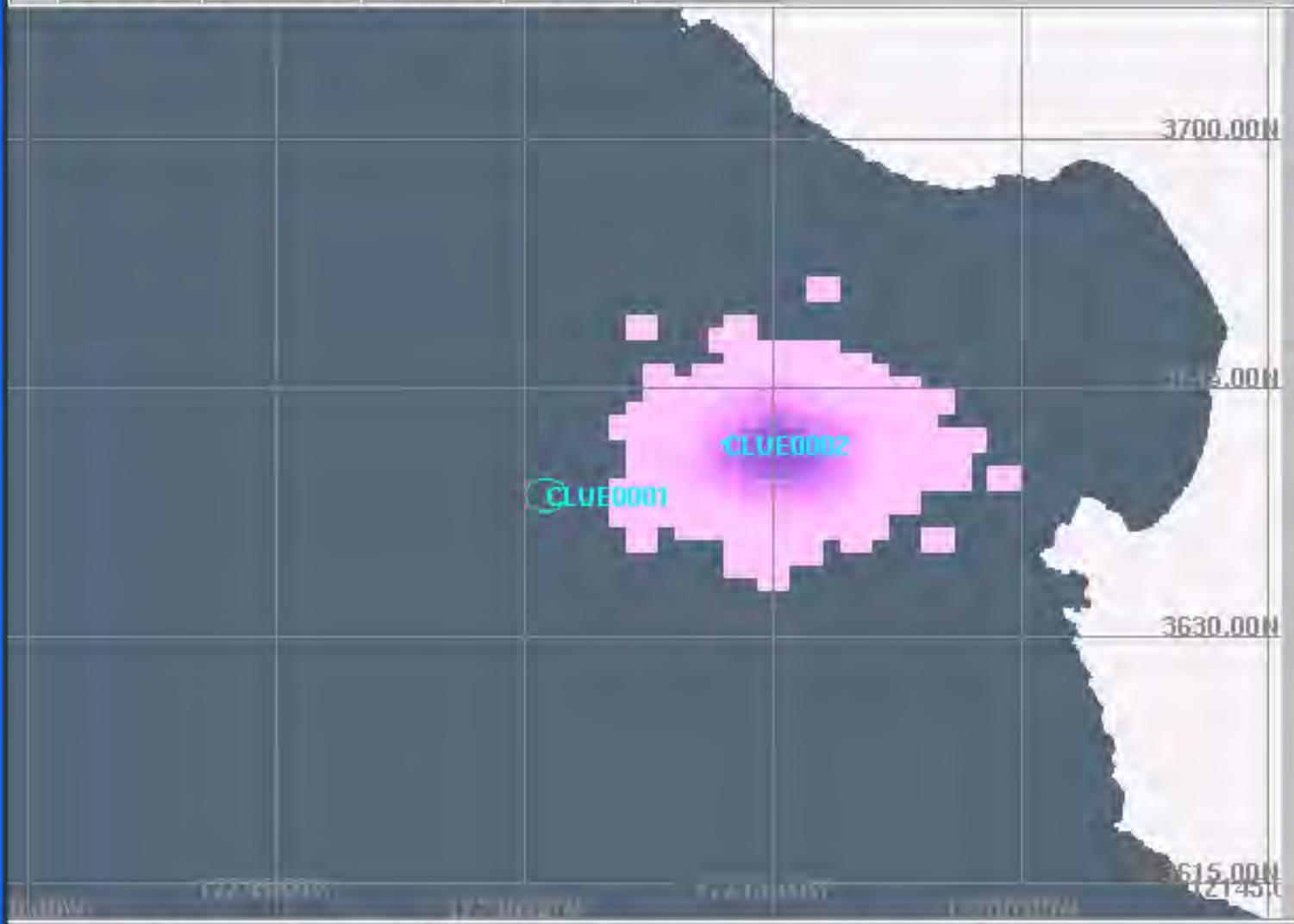
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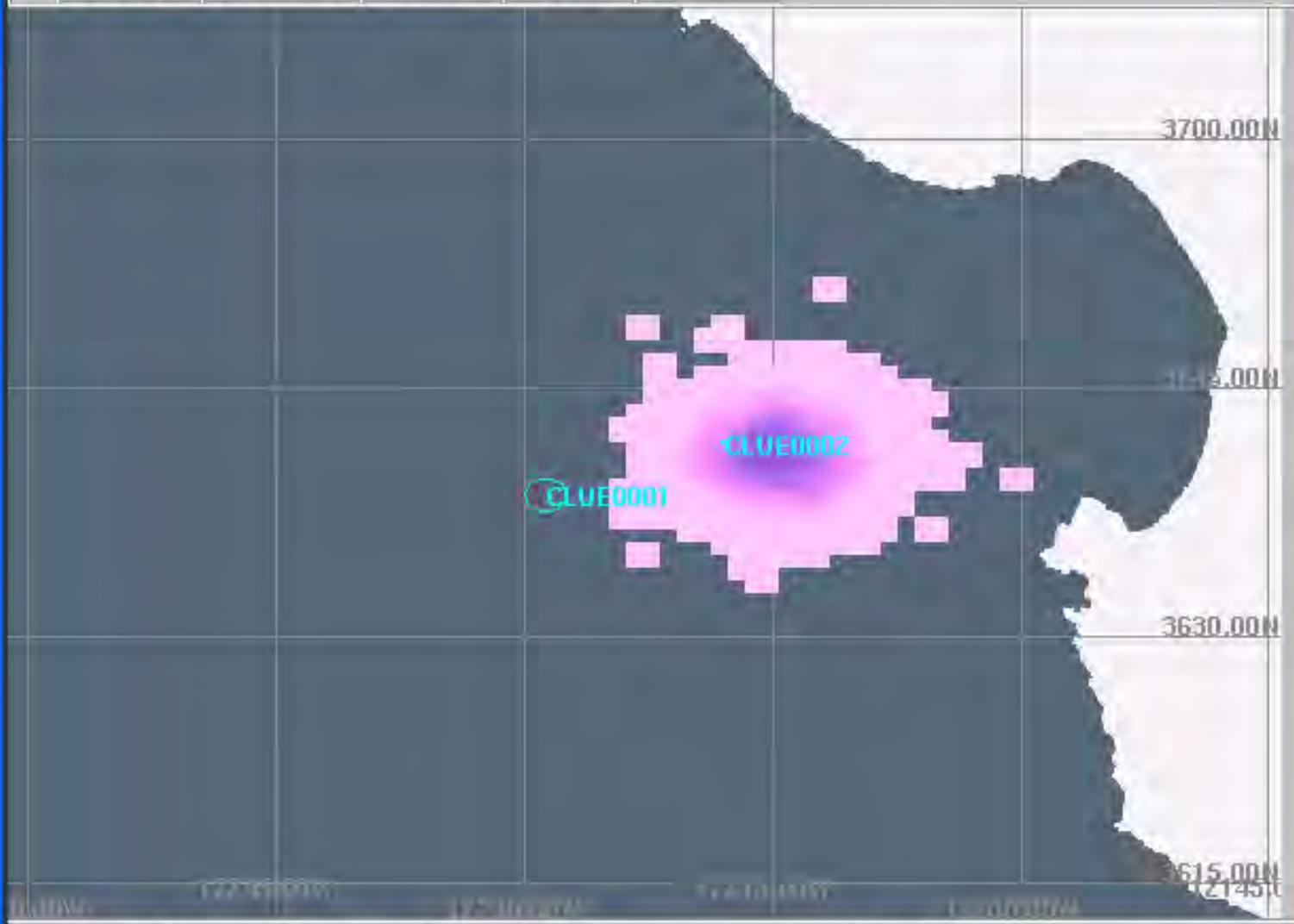


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PROB OF TARGET BEHIND THE COAST

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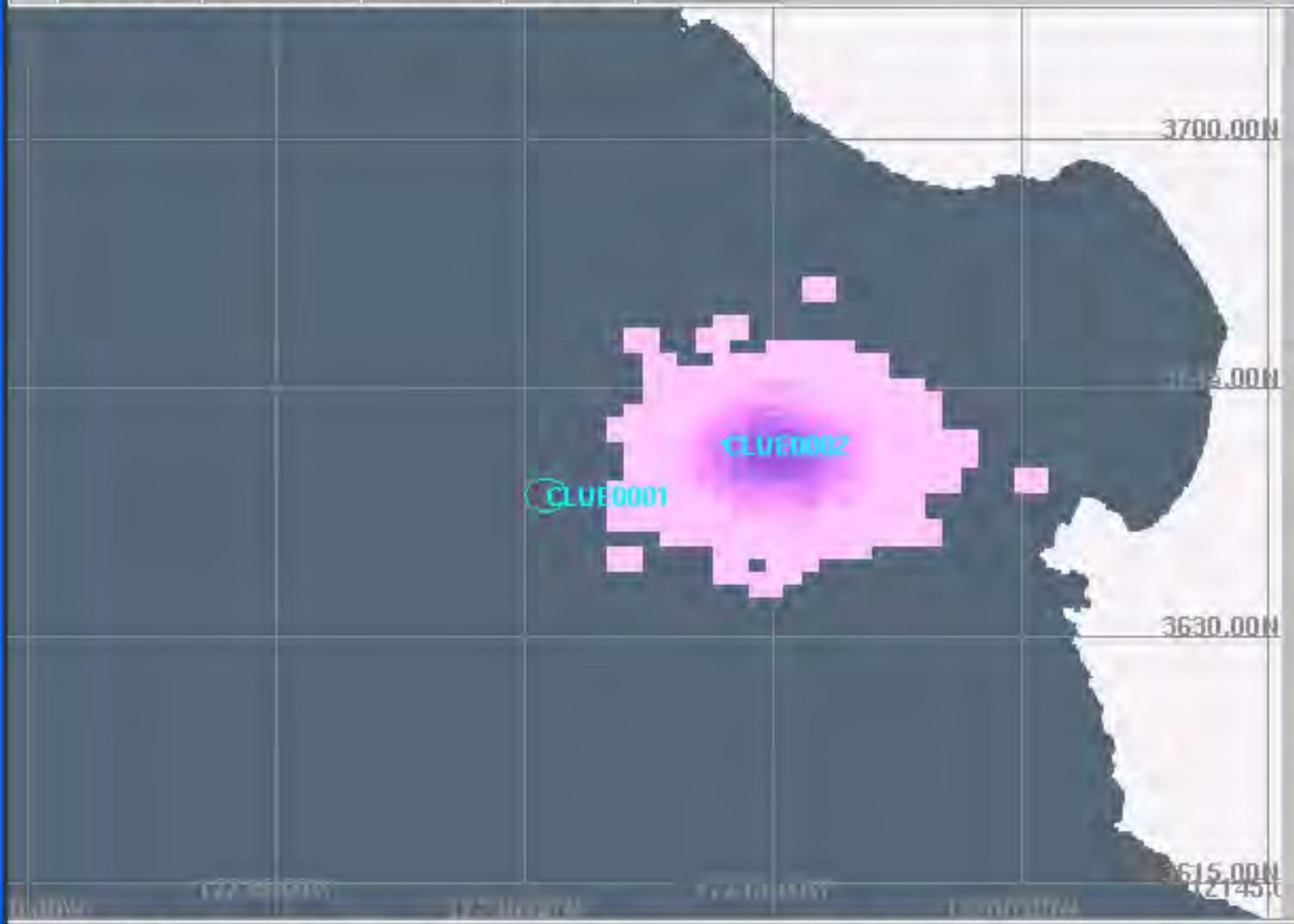
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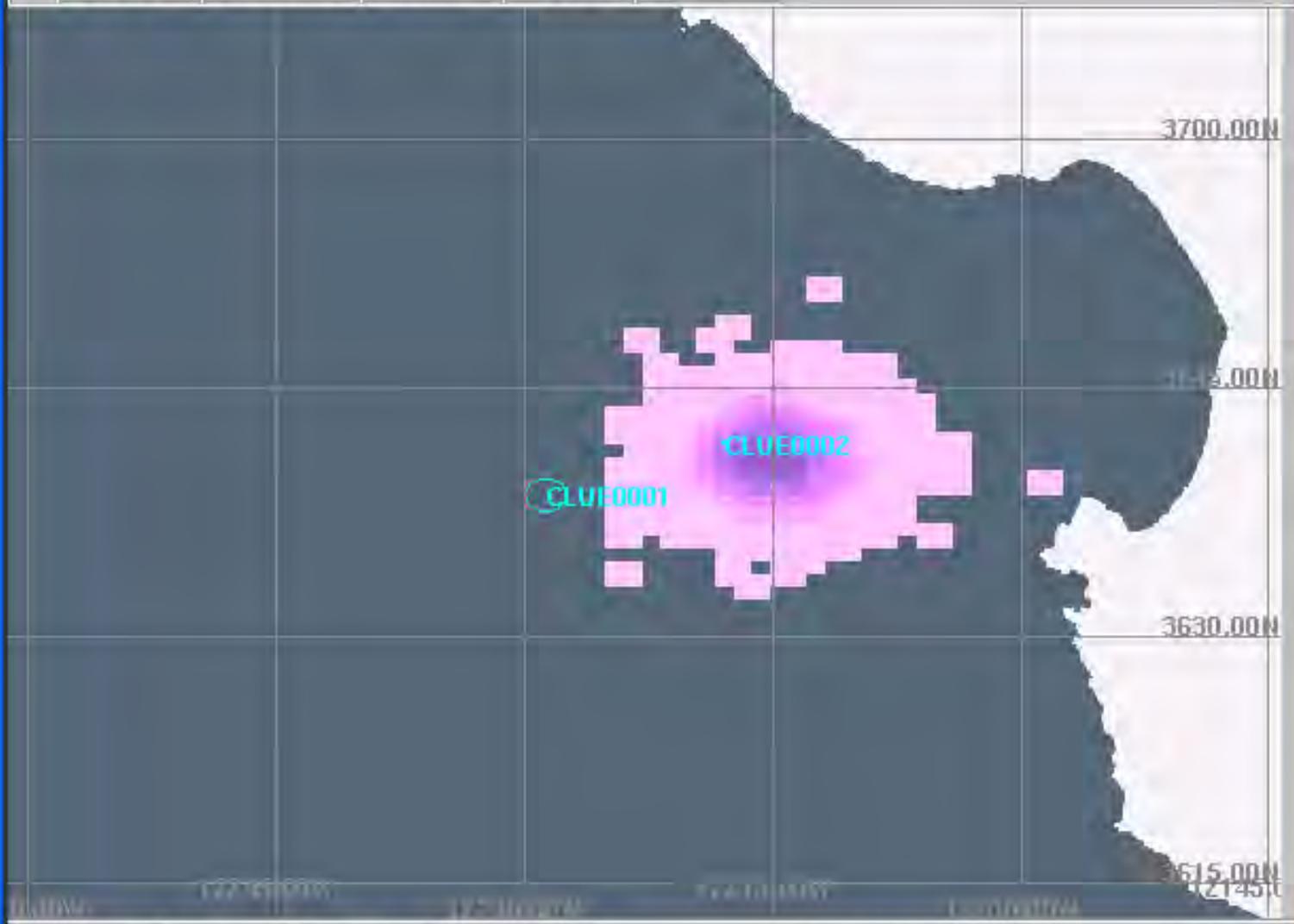
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Legends

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26:00



Legends

PROB OF TARGET BEHIND THE COOP OF CARRIER

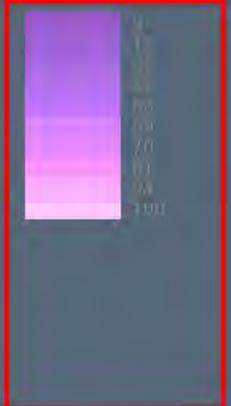
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27:00

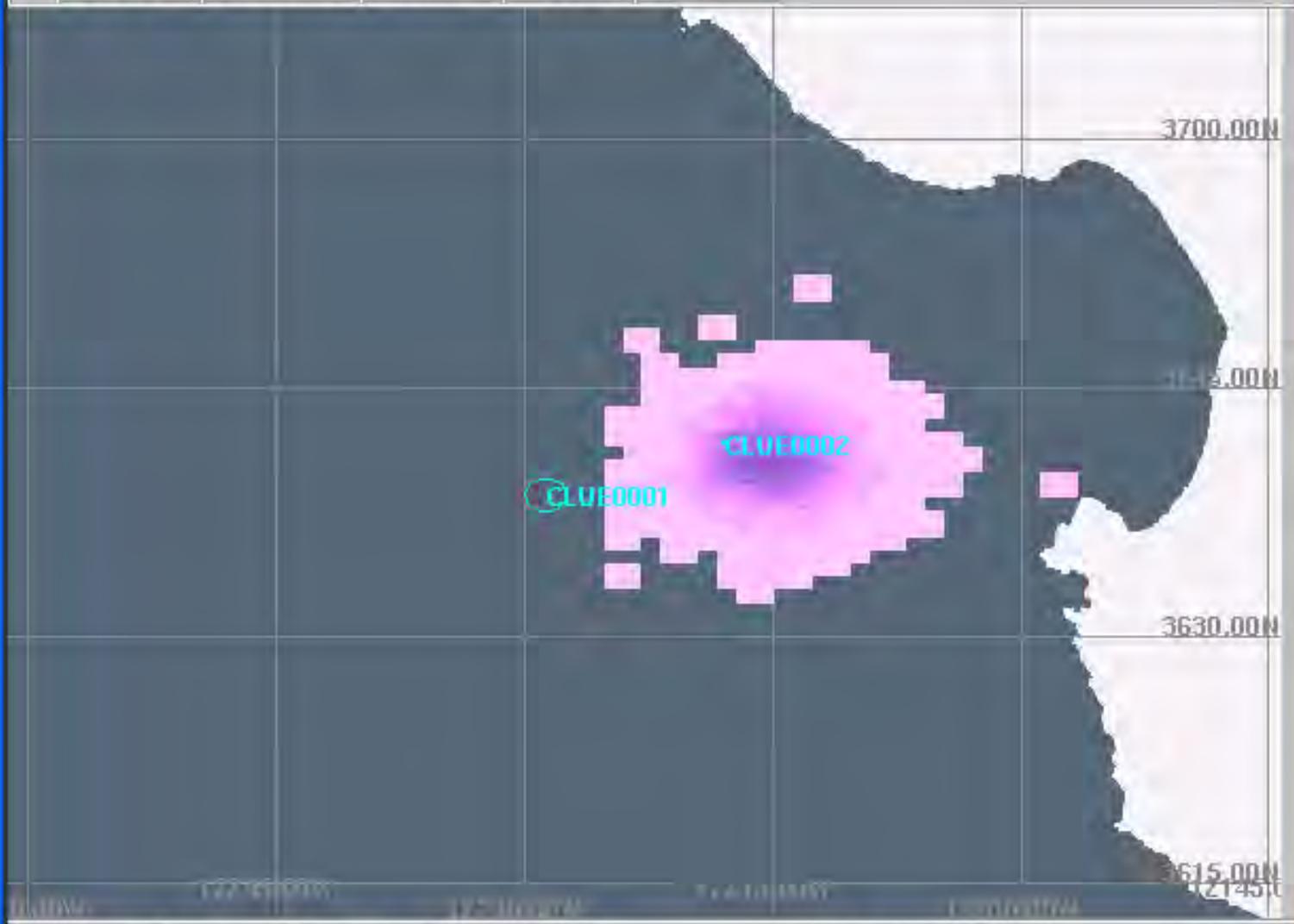
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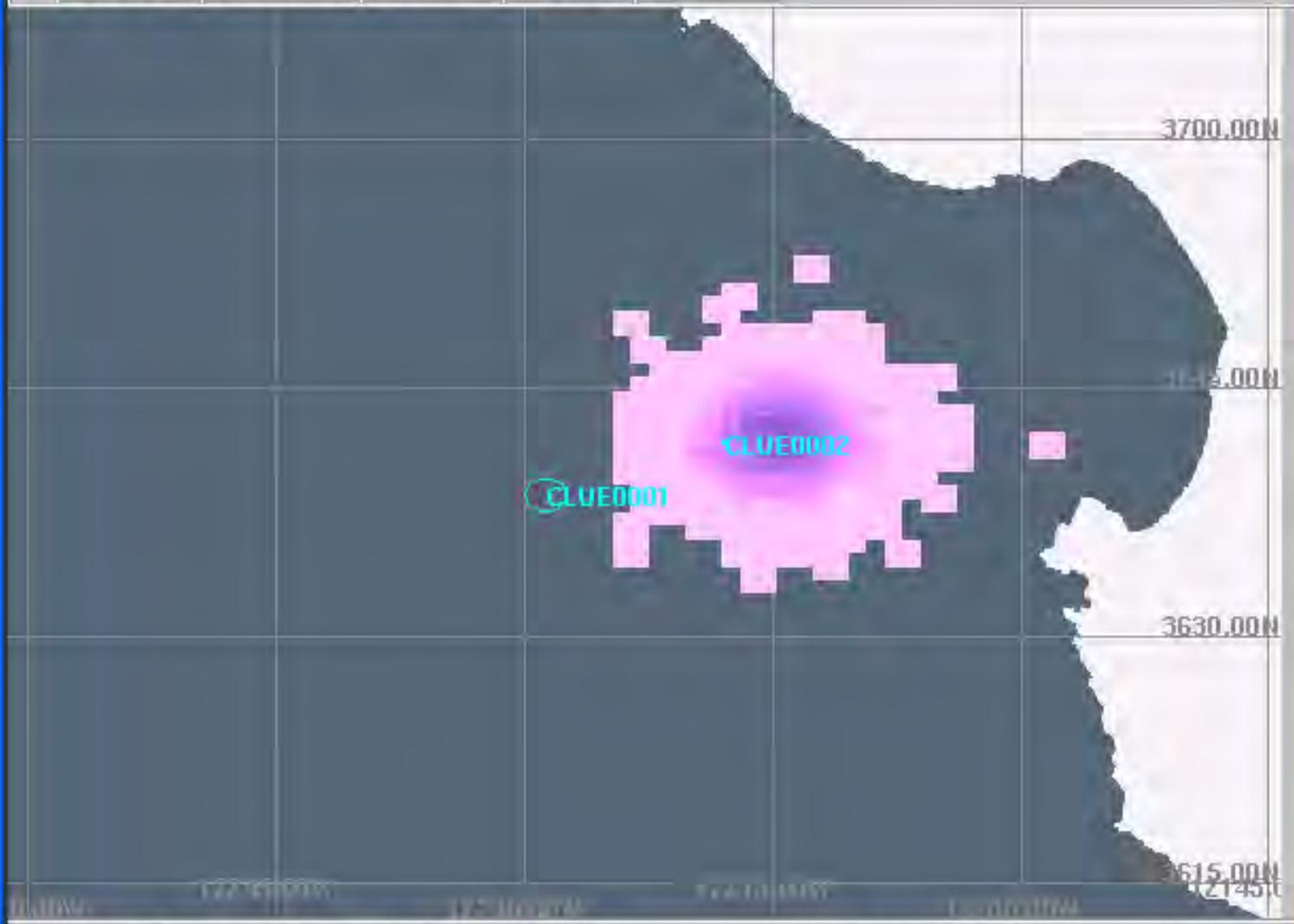


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28:00



Legends

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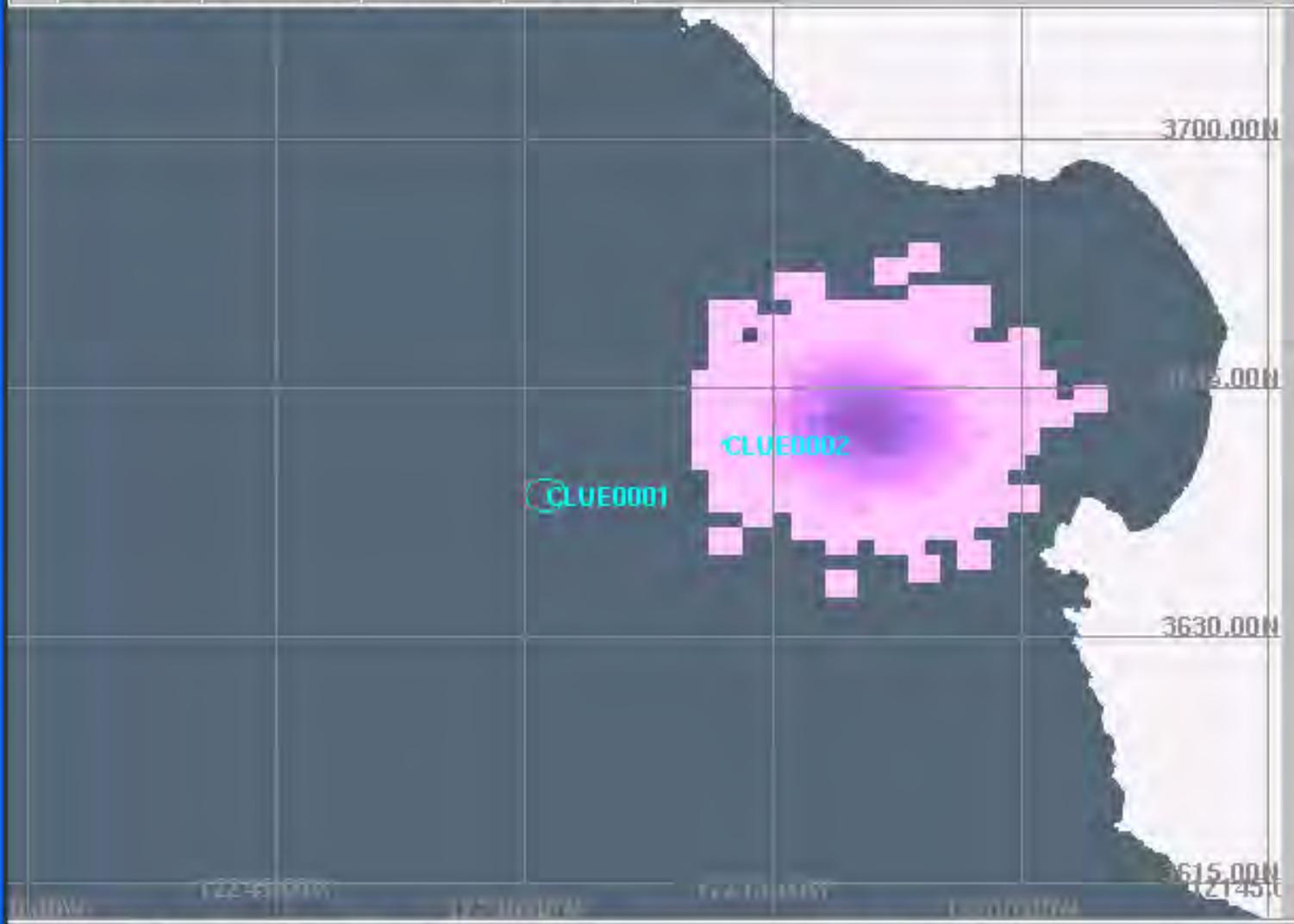
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32:00



PROB
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Previous Next
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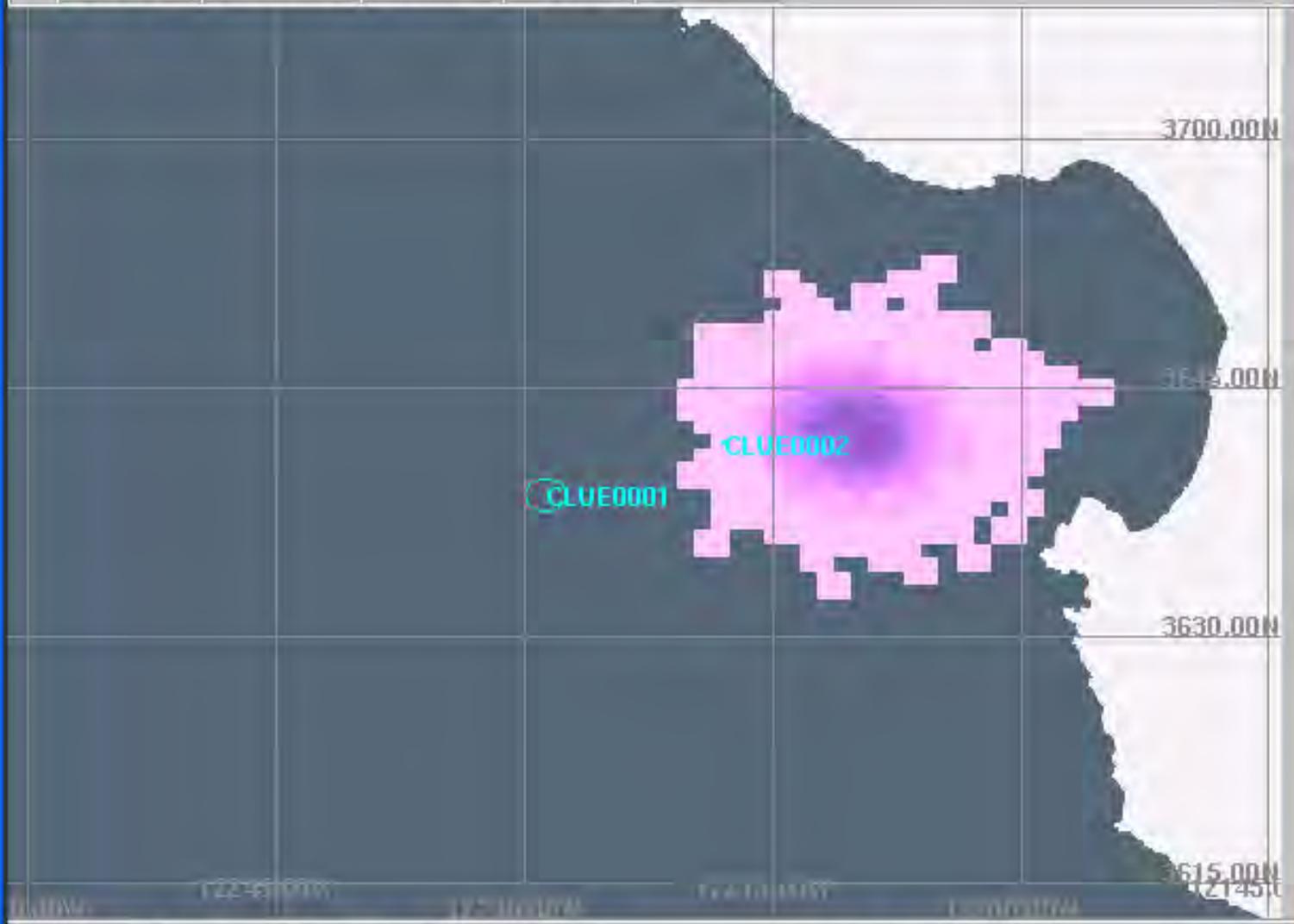
40:00

Legends

PROB OF TARGET BEHIND THE COBOP OF CARRIER



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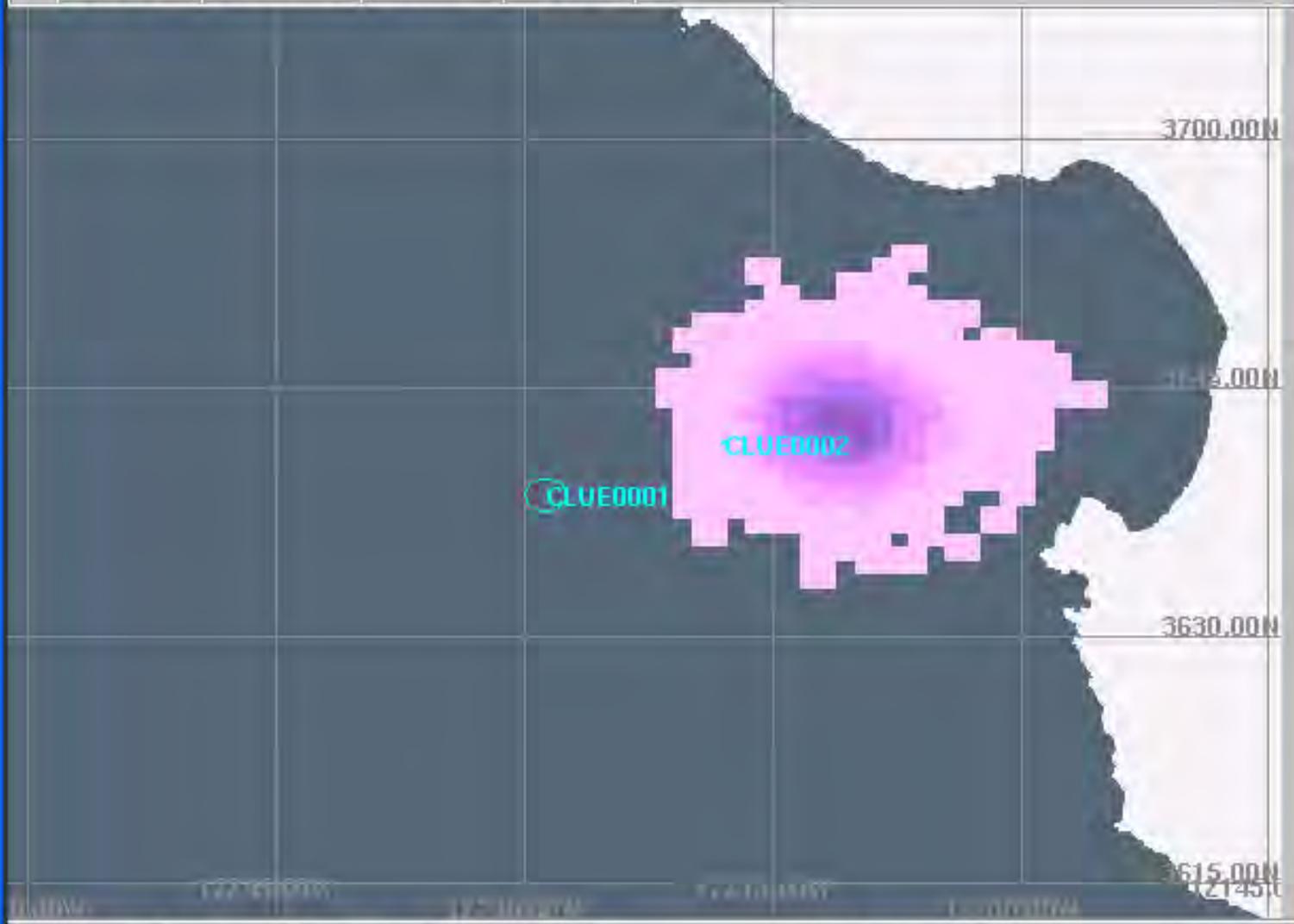
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Legends

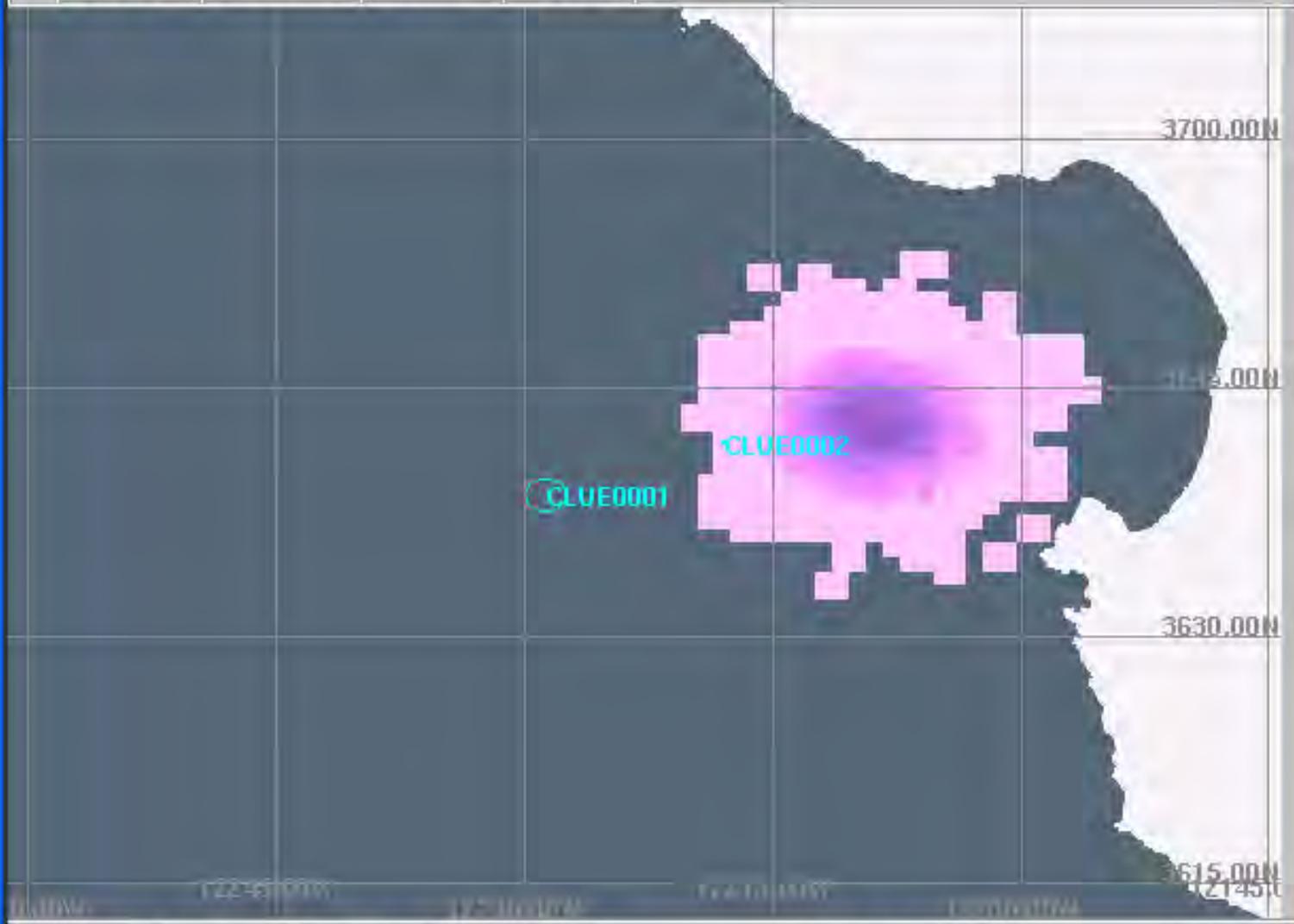
PROB OF TARGET BEHIND THE COOP OF CARRIER



Previous Next
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48:00



Legends

PROB OF TARGET BEHIND THE COVER CARRIED

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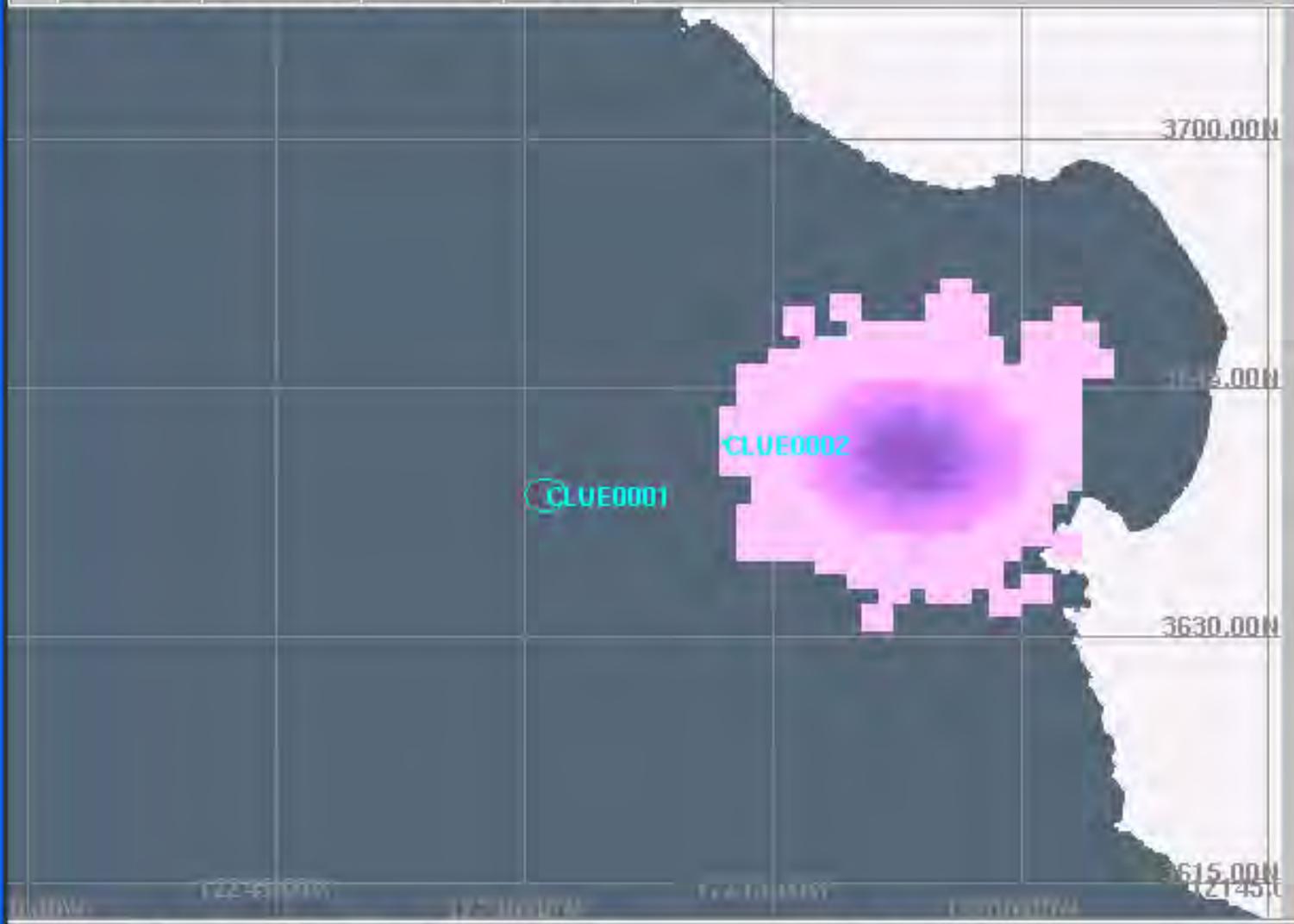
52:00

Legends

PROB OF TARGET BEING HIT BY THIS COLOR OF CARPET

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Previous Next
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56:00

Copyright 2011

Doc Ricketts\images\0219\01_14_42_22.png (MAIN) HD=01:14:44:22

Wed Mar 9 17:06:53 2011 GMT (local +8) esecs=1299690413

Pennatula phosphorea californica

Dive# 219

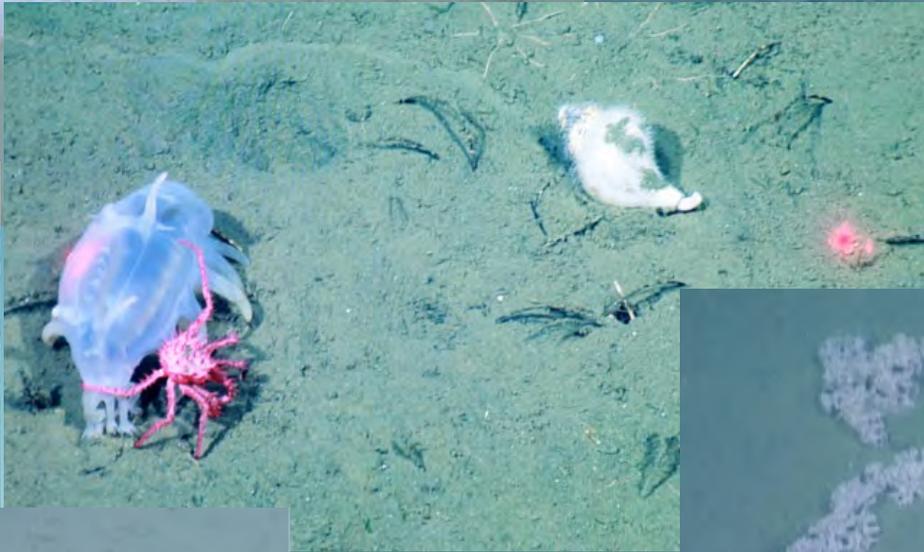
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Lat= 36.697651 (raw)

Lon= -122.295160



Depth= 1265.86 m Temp= 3.228 C Sal= 34.519 PSU Oxy= 0.759 ml/l Xmiss= 87.95%











Container on	Seafloor	
Aeolidiidae? (nudibranch)	Actinaria spp. (anemone)	
Amphipoda	Aeolidiidae? (nudibranch)	
Brisingida (Asteroidea)	Allocentrotus fragilis (fragile urchin)	
Calliostoma? (white top snail)	Anoplopoma fimbria (sablefish)	
Clavularia sp. (octocoral)	Anthoptilum grandiflorum (sea pen)	
Eggcases (Neptunea amianta)	Antimora microlepis (codling)	
Eggcases (unknown)	Asteroidea - probably a few additional species	
Florometra sp. (crinoid)	Asteronyx (brittle star on whips)	
Hormathiidae (fly trap anemones)	Bathysiphon (benthic foram)	
Hydractiniidate (Hydrozoa)	Benthic cteniphore (white)	
Hydrozoa (unknown sp)	Benthic siphonophore (possibly Dromalia juvenile)	
Neptunea amianta	Benthoctopus sp. (octopus)	
Sabellid polychaetes	Bothrocara brunneum????	
Scallop	Chionocetes (juvenile)	
Serpulid polychaetes	Coryphaenoides sp.	
Tunicate	Distichoptylum (cork scfew whip)	
	Funiculina-Halipteris Complex (probably both species were seen)	
Container near	Granelodeone sp. (octopus)	
Paralomis sp. (large lithodid crabs)	Liponema brevicornis (pom-pom)	
	Lithodidae (juv, often associated with Scotoplanes)	
	Lophaster sp (asteroidea)	
	Lycenchelys sp. (snake head eelpout)	
	Lycodapus sp. (midwater eelpout)	
	Neptunea amianta	
	Ophiuroidea spp.	
	Pennatula phosphorea californica	
	Scotoplanes globosa (sea pigs)	
	Sebastolobus (thorny head rockfish)	
	Solaster sp. (sun star)	
	Tritonia diomedea (large nudibranch)	
	Umbelula lindhali (droopy sea pen)	



NATIONAL MARINE
SANCTUARIES in
MONTEREY BAY





Corner locks



The future of containerization and this project...

